



A Different Perspective

Mars made headlines in August when it drew closer to Earth than it had been in 60,000 years. Over the next 2 months, four new satellites will take advantage of this proximity to reach Mars from Europe, Japan, and the United States. Joining two already in orbit, they will provide unprecedented data on Mars's atmosphere as well as surface and subsurface characteristics. Similar data have already transformed the way we analyze economic processes closer to home. In recent years, satellite data on Earth's climate, topography, and land cover have become available at ever-higher spatial and temporal resolution.

Satellite data provide unprecedented detail on a variety of resource characteristics, but they require costly interpretation before they can be used in economic analysis. For example, satellites have provided high-resolution images of the Earth's surface for decades, but only recently have land cover data been assembled in a globally consistent classification scheme. Development and analysis of such spatial data have become much easier in recent years because of improvements in computers and geographic information systems software.

When combined with spatial data on soils, population, and other factors, satellite data help us develop better indicators of land quality, length of growing period, and proximity to urban areas. Analyzing these indicators along with data on agricultural inputs and outputs, prices, and other economic factors enhances our understanding of a wide range of economic processes. ERS researchers have analyzed spatial data to examine agriculture's effect on water quality in the Gulf of Mexico and the costs and benefits of farmland protection. ERS researchers have also used spatial data (including satellite imagery) to analyze the costs of meeting new environmental standards when spreading manure on cropland, and land degradation's impact on agricultural productivity and food security. Challenges remain in developing and analyzing such data, but the payoff is better information for public and private decisionmakers.

We're not yet ready to study economics on Mars, but the arrival of four satellites named Hope, Spirit, Opportunity, and Beagle 2 will soon open windows on a new world while reminding us of new perspectives on events here at home.



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